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NOCTUID NOTES.

BY F. H. WOLLEY DOD, MILLARVILLE, ALTA.

Xylina Treit. (*Graptolitha* Hübn., Hamps. Cat.).

Amongst the many errors in nomenclature brought to light by Sir George Hampson's most valued work on the Noctuidæ, is one concerning two of our commonest eastern Xylinas.

In 1871 Riley described what he believed to be a very variable species as *X. cinerea*. In 1874 Grote recognized that the name referred to a mixture of species, and choosing a specimen of one of them as a type to hold Dr. Riley's name, described another form as *laticinerea*. In 1879 Prof. Fernald discovered that Walker's *antennata*, which had been described in 1858 from an unknown locality, came from North America, and was the species chosen by Grote to hold Riley's name, which therefore sank. Grote made the reference, and at the same time tentatively separated and described a third form from the group as *cinerosa*. Then Riley, finding *cinerosa* preoccupied in the genus by a European species of Guenée's, cited *Grotei* as the name to be used for Grote's *cinerosa*.

The foregoing is old, and well known, but Sir George Hampson's changes are more recent, and as yet but little known. The European *cinerosa* Gn., has now turned out to be a synonym, and Hampson therefore restores Grote's name in place of the long familiar *Grotei*. But he has also shown us that hitherto Grote's two species have generally stood reversed in collections, and that the large gray-sprinkled species, with whitish contrasting orbicular, and without brown in reniform, is really *cinerosa* = *Grotei*, and that *laticinerea* is the smaller, less gray, and more common species, of which *Winnipeg* Smith is correctly referred by him as a synonym. I have studied the types of all the above names. The variation is apt to be confusing, and *cinerosa* and *laticinerea* appeared to me to be mixed at the British Museum as elsewhere, but the type of *laticinerea* is figured by Hampson, and a specimen like the type of *cinerosa*, and both figures are easily recognizable. The synonymy now stands;

Xylina cinerosa Grt. *Grotei* Riley	Large, gray-sprinkled; orbicular whitish, contrasting. No brown in reniform.
laticinerea Grt. *Winnipeg* Smith	Smaller, duller, orbicular scarcely contrasting, usually with brown in reniform.
antennata, Walk. *cinerea* Riley	(No change.)

The characters given for the first two species were designated by Grote himself. Holland's figure of *laticinerea* happens to be correct, but in Prof. Smith's monograph, Pl. v, figs. 29 and 30, the names are reversed.

A species standing wrongly under *Winnipeg* in collections, and often mixed with the true species, is the Manitoba form of *animada*, which is rather more strongly marked than typical.

X. hemina Grt.—This name has long been applied to *disposita*, from which it has been thought questionably distinct. Nearly all the specimens I have seen standing in collections as *hemina*, I believe to be *disposita*. At any rate, none have been *hemina*, the two being really quite unlike, as my notes on, and Hampson's figure of the type of *hemina* show. Though I have known *disposita* for long, until I saw the type in the British Museum about a year ago, I had never seen *hemina*. My notes on the type tell me that it is a strigate species, and "so unlike *disposita* that comparison is superfluous." The type comes from Lewis Co., N. Y., and it appears to be a very rare species. Though I have seen several of the principal collections, I have not yet identified this with certainty in any of them. Grote in his description says that it is longer winged than *disposita*, with "spots and lines less distinctly limited, and more as in *petulca*." He adds that it has a peculiar general resemblance in ornamentation and colour to *Hadena vulgaris*. The type, a male, came from the Hill collection, which contained other specimens. Where that collection now is, I have not heard. Smith's Monograph, Pl. iii, fig. 2, called "*hemina*, melanic form," I rather suspect of being a pale *oriunda*. Fig. 4 I should call about normal *petulca*, and the same as fig. 13, called *rignosa*, a name of which I cannot at present arrive at the true status.

Tæniocampa Gn. (*Monima* Hbn.; Hamps. Cat.)

It will come, I fear, as a shock to many, to learn that both the names *alia* Gn., and *pacifica* Harv., are everywhere wrongly used. The type of *Tæniocampa alia* Gn., is a good specimen, a female, in the British

Museum. It was described in 1852 from "U. S. A." It is the common and widely distributed species hitherto everywhere known as *Hadena suffusca* Morr., described twenty-three years later, of which, however, I have not yet seen the type. Assuming *suffusca* to have been correctly identified, *alia* Gn., which has smooth eyes, and is therefore not a Tæniocampa, has priority.

The next name up till now in the synonymy of *alia* being *hibisci* Gn., that must be used for the common eastern Tæniocampa. I have not seen the type, but merely assume that it has been correctly referred, not to *alia*, but to the species we have mistaken therefor. Hampson's figure of *alia* is not of the type, but the species I now call *hibisci*. Whether Guenée intended the name *alia* to apply to the species which bears the type label may be open to question. I have not seen the description, but am guided by the type. Though the Tæniocampa sometimes resembles *alia* in colour, and they have a similar subterminal line and shade, they can scarcely be confused by anyone acquainted with both, even apart from generic characters. From the foregoing it follows that Holland's figure of *alia* should be called *hibisci*.

In 1874 Dr. Harvey, or more probably perhaps really Grote, under Harvey's name, described *pacifica* from Sanzalito, Calif., comparing it to *alia*, undoubtedly meaning thereby, not the Hadena, but *hibisci*. Harvey's name has also been wrongly applied to a very common and widely distributed British Columbian form which intergrades in Alberta with *hibisci*. His type is a female in the British Museum, where there are four other similar Californian specimens, and one from Vancouver Island. Other true *pacifica* that I have seen are, one in my own collection from Oakland (which is close to the place repeatedly called "Sanzalito" in Hampson's Catalogue, though I believe Sancelito is correct); one in Prof. Smith's collection labelled "Canada"; and a male from Victoria, B. C., in the Neumogen collection at Brooklyn. I may have seen one or two more, but can find no note of them at present. It is evidently a very rare species. It is characterized by the paler colour, obsolescent orbicular, narrow, somewhat constricted reniform, contrasting with the pale, even ground, but not conspicuously pale ringed, and a slight w in the s. t. line, which is preceded by a narrow dark band of even width.

The common B. C. form hitherto passing as *pacifica*, as it intergrades with the eastern *hibisci* in Alberta, I cannot recognize as distinct, though on the B. C. coast it is certainly a well-marked local race. In view of this fact, and as it has for years passed as a species, being larger and far

brighter coloured than eastern specimens, I propose the racial name *latirena*, which will serve to distinguish it from *pacifica*. I consider no description necessary, and make no type. Hampson does not figure the type of *pacifica*, and his figure under that name is *latirena*.

Quinquefasciata Sm. (Journ. N. Y. Ent. Soc., XVII, p. 65, 1909), is a well-marked form of *latirena*, with distinct cross-lines and ventral shade, which I have had in my collection for fifteen years, and have often vainly tried to separate out as a species. I am no better able to do so after seeing the types, and believe it to be merely a varietal form, occurring throughout the range of the *latirena* form of *hibisci*.

The synonymy of the above mentioned species will now stand:

Hadena alia Gn.
suffusca Morr.
Tæniocampa pacifica Harv.
" hibisci Gn.
a. latirena Auct.
b. quinquefasciata Sm.

T. mecrona Sm. (Journ. N. Y. Ent. Soc., XVI, p. 95, 1908). A good species, I believe, described from Kaslo, and recognized by Mr. Cockle and the writer two years before. It is the "grayer and smoother first brood of *communis*" referred to by Dr. Dyar in the Kaslo list, and a large number of the co-types of *communis* are *mecrona*. I have separated them in the Washington collection. It is characterized by being slightly larger and longer winged, less red, having cross-lines fainter, orbicular usually larger and rarely dark-centered, and less of shade before s. t. line. The two are very close allies, and must be well studied in good series to be separated. I have a specimen from Oakland, Calif.

T. Smithii Dyar, its author refers, in Proc. U. S. Nat. Mus., XXVII, p. 868, 1904, as "at least a different race from *communis*." The female type at Washington is from "N. Ill.," and I believe it to be the same species as Morrison's type of *incinata*, male, without locality, in the same collection. It is a broader winged species than *communis*, with male antennæ bipectinate with rather long branches. A Colorado female there in the *incinata* series, and one from Mr. Val. Fernaker (? Wisconsin), as well as type *Smithii*, have double pale-filled t. a. line. Type *incinata* and a ♀ "N. Ill." have it single, but they seemed to me all one species.

T. alurina, Sm.—The type is a Chicago male in Prof. Smith's collection, where there is also a male from Pittsburg, Pa. It is an ally of

hibisci, but is broader winged, and has more strongly serrate-fasciculate antennæ, almost pectinate, as mentioned in the description.

T. saleppa Smith (Trans. Am. Ent. Soc., XXXIII, p. 132, 1907.)—Described from Wellington and Victoria, B. C., as a close ally of *præses* Grt. Prof. Smith has in his collection two short series as *præses* and *saleppa*, including the type of the former, and B. C. specimens under both. Those under *saleppa* are paler and more ochreous than the rest, but I am unable to recognize two species, and do not think that B. C. collectors can do so either.

MOSQUITO OBSERVATIONS.—CONTINUED.

BY C. S. LUDLOW, PH. D.
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In an article published last year* I described the female of *Oculiomyia Fulleri* mihi, and since then have received several specimens of each sex. The male resembles the female closely in colour markings, but it is of some interest to note that in each of the three males the verticels of the antennæ are in part specially developed. In one instance the 6th and 7th joints show them short, heavy, wrinkled and scale-like; on the other two specimens the 6th, 7th and 8th joints have the verticels altered in this way, while in one of these, on one antenna, the verticels at one joint appear as long slenderly spatulate flat scales about half as long as the normal verticels. The specimens are, as a whole, in bad condition, only one leg remaining on the males, and as it broke off before I noticed its attachment I cannot be sure which it is; the ungues on it are unequal and simple.

There have also been received two apparently new forms, described below, and the female of *Popea lutea* mihi, the male of which was described† in 1905, and no other specimens received until this year.

Popea lutea mihi (female).

The general markings agree well with those of the males, but are, as a whole, darker.

Antennæ brown, white, unscaled at the joints, basal joint testaceous, 1st joint with many dark brown flat scales, verticels and pubescence brown or light, according to the direction of the light; palpi short;

* New Philippine Mosquitoes. Can. Ent., Mch., 1909.
†Mosquito Notes, No. 3. Can. Ent., Mch., 1905.

mottled brown and light yellow with aggregations of light scales at the apices of the ultimate and penultimate joints simulating bands; proboscis mostly yellow, base dark brown, and an irregular band of dark brown at the apical portion; labellæ light.

The abdominal markings vary greatly in both sexes; in some specimens the males have a nearly pure yellow abdomen with narrow dark brown apical bands, while in others the abdomen is much darker, the "spots" only being light; the females are darker than the males, but even then vary much, being often dark with small median yellow spots and very small white apical lateral spots, the last two segments mostly light, sometimes with a narrow sub-apical dark band. Sometimes the median spots are white, and there are two submedian nearly apical yellow spots making a suggestion of triangular marking, the base towards the apex of the segments, and the small lateral white spots are extended into a very narrow cephalocaudad line on most of the segments. The ventral tufts are not so pronounced as in the male and could easily be overlooked; the venter is yellow with apical brown bands.

Legs as in the male, but the last joint in either may be yellow with a dark basal spot or band. Ungues are uniserrate on all the legs.

Wings as in male, but darker.

Stegomyia nigritia, n. sp. (female).

Head dark brown, closely covered, except the very tip of the vertex which is partly white, with dark brown flat scales and a few brown bristles; antennæ brown, verticels and pubescence brown, basal joint brown with a few white flat scales; palpi dark brown, ultimate joint and apex of penultimate brilliant white; proboscis dark brown; clypeus dark brown; eyes dark brown.

Thorax dark brown; prothoracic lobes with brilliant white flat scales and brown bristles; mesonotum with dark brown slender curved scales, and a line of brilliant white scales at the lateral margin extending cephalad from the wing joint almost continuously to the prothoracic lobes, and partly on the pleura; pleura brown with a few bunches of white scales and the line just referred to at the junction of the mesonotum; scutellum with brown flat scales; metanotum brown.

Abdomen: Dark brown with dark brown scales and brilliant white lateral spots sometimes extending across the tergum as very narrow basal bands, venter brown with basal sub-median brilliant white spots.

Legs: coxæ and trochanters all mottled brown and white scales; fore femora dark brown with apical white spot, tibiæ dark, 1st and 2nd tarsal joints with tiny basal white spots, remaining joints dark; mid-femora dark with narrow light line ventrally, apex white, tibiæ dark with very small basal white spots, 1st and 2nd tarsal joints with small basal white spots, and a couple of white scales at base of third joint on one leg, the rest dark; hind femora white at base and as a line on cephalic aspect to near the apex, apex white, tibiæ dark with tiny basal white spot, 1st, 2nd, 3rd and 4th tarsal joints dark with broad white basal bands, last joint pure white.

Wing: brown scaled; cells rather long, 1st submarginal distinctly longer and about the same width as 2nd posterior; base of third long vein and mid cross-vein meet and of about equal length, posterior cross-vein a trifle longer and distant more than twice its length. Halteres dark.

Length 5 mm., without proboscis.

Habitat, Cottabato, Mindanao, P. I.

Taken December.

Described from two quite perfect specimens sent by the Surgeon at the Post.

The mesonotum suggests *D. fusca*, Theob., but the third long vein is not carried back, and the leg markings are, of course, quite distinctive.

Culex? aureopunctis, n. sp. (female).

Head brown, covered with ochraceous curved and lateral flat scales, many dark brown fork scales, a line of yellow scales around the eyes, a couple of yellow bristles between the eyes and many brown ones projecting forward around the eyes The head does not seem at all denuded, nevertheless there is a bare median V-shaped space, the base at the vertex. Antennæ dark brown, white banded at the joints, verticels and pubescence dark brown, basal joint brown; palpi dark brown with some pale scales; proboscis apparently has the apical third partly denuded, but the remaining scales show dark brown with a deep ochraceous band near the apical third especially well marked on the ventral side, labellæ dark; eyes brown with red-gold reflections; clypeus brown.

Thorax dark brown; prothoracic lobes with light ochraceous scales and brown bristles; mesonotum covered with dark brown curved scales and a few golden yellow ones which make a broken line from the wing joints to the prothoracic lobes at the junction of mesonotum and pleura, and a faint line on either side of the "bare space" running cephalad

from the scutellum about half the length of the mesonotum, where they terminate in two brilliant round yellow spots, also a faint median spot near the nape, heavy bunches of brown bristles on either side of the "bare space" and at the wing joint; pleura brown with some pale scales; scutellum brown with bright ochraceous curved scales and many brown bristles; metanotum brown.

Abdomen brown, closely covered with brown flat scales and a few apical ochraceous ones on the 4th, 5th and 6th segments, making minute apical bands on the two latter, apical hairs ochraceous, venter ochraceous, with dark apical bands, the ochraceous scales extending on the seventh segment so as to form small lateral spots visible on the dorsal aspect.

Legs: Coxæ brown with pale scales, trochanters with ochraceous scales; all the femora with very dark brown scales, speckled or mottled with ochraceous spots, ventrally ochraceous and with an apical ochraceous spot; tibiæ dark, mottled with ochraceous spots, the bases and apices very narrowly ochraceous-banded, and in some lights the whole tibia looks fawn-coloured; all the femora and tibiæ with many dark brown bristles; all the tarsi very dark, but in some lights appear fawn-coloured. Fore and mid ungues with a tiny basal protuberance, hardly a tooth, hind ungues simple.

Wings: Clear, with very small brown scales; indeed, for the size of the insect all the scales are small; the median scales rather heavy and *Tæniorhynchus*-like, the lateral scales linear. The apex of the wing is densely scaled, but the base of the sixth and third long veins have apparently never had any lateral scales, though there are a few at the apex of the sixth, and the apical half of the third is rather densely scaled. The costa shows a delicately spinous effect. The cells are long, nearly double the length of the stems, and the first submarginal is longer and narrower than the second posterior cell, their bases nearly on a line; the root of the third long vein and the mid cross-vein meet and are of about equal length, the posterior cross-vein is about one-quarter longer, and is directed slightly backward and only a little interior to the mid. Halteres are dark, the knob darker than the stem.

Length, 7.5 mm., without proboscis.

Habitat.—Cottabato, Mindanao, P. I.

Taken December.

Described from one nearly perfect specimen sent by Capt. Eastman, M. C., U. S. Army. It is a large species, and in the hand is a rich reddish-brown, the two yellow spots on the thorax being very noticeable.

NOTES ON OUR EASTERN SPECIES OF THE MAY-FLY GENUS *HEPTAGENIA*.

BY NATHAN BANKS, EAST FALLS CHURCH, VA.

The May-fly genus *Heptagenia* is a very well marked one, in the form that Walsh used the name. Eaton split up the genus into several, none of which are readily identified; most of these genera are based on secondary sexual characters, which I cannot recognize as of generic value. *Epeorus* (with *Iron)* is perhaps the most distinct group, and may yet be used in a subgeneric sense, if some character can be discovered to support it. In the male the basal joint of tarsus I is subequal to the second joint, and in most of the species the setæ are brown, not marked with black at tips of joints; however, in *H. (Epeorus) modestus*, described below, the setæ are as in other *Heptageniæ*.

It may be remarked here that in *Heptagenia* every alternate joint of the setæ is unmarked or only faintly marked at its tip; whereas in *Siphlonurus* every joint of the setæ is equally marked with black at its tip; this enables one to readily distinguish the setæ of these two genera, when, as frequently happens, they are broken off in a vial or box containing both genera.

I have added the description of one Californian species of *Epeorus*.

The following table of the Eastern species of *Heptagenia* (except *Epeorus)* applies to the males; females, however, will, in some cases, also run out correctly. There are several species described from the Eastern United States or Canada that I have not identified; and one or two of my identifications are somewhat doubtful to me, especially *H. simplex*. The form I have from Washington may very possibly be a new species allied to the true *H. simplex*.

1. Thorax with a broad dark median stripe, or two narrow stripes close together, male with basal joint of tarsus I longer than apical joint ..... *H. verticis.*
   Thorax without dark median stripe ..... 2.
2. Tips of hind wings distinctly dark; beneath the bulla the cross-veins are more numerous than elsewhere and faintly clouded. *H. vicarius.*
   Tips of hind wings not darker ..... 3.
3. Anterior margin of head black; colour pale yellowish, with black spots on the pronotum and pleura, no dash in wings ..... *H. marginalis.*
   Anterior margin of head not black, though there may be black spots above it ..... 4.

4. Two black spots or a band on face under the antennæ ; femora banded in the middle.....5.
No black spots on face under antennæ .....7.

5. No dash in wing ; about two cross-veins margined with black near the place, thorax brownish .....*H. frontalis.*
A dark dash in wing, thorax and abdomen often yellowish.....6.

6. A spot each side on face under antennæ ; abdomen mostly pale.....*H. interpunctata.*
A band on face under antennæ ; abdomen usually darker.....*H. Canadensis.*

7. All costals before bulla broadly margined with black, also some other cross-veins ; small species .....*H. maculipennis.*
Not so many costals margined. .....8.

8. Small species, veins hyaline.....*H. simplex.*
Larger species, veins yellowish, costal area yellowish. *H. flavescens.*
Veins brown or marked.....9.

9. Femora unbanded in middle, veins all brownish.....*H. placita.*
Femora banded in middle.....10.

10. Two small dark dots on median carina between antennæ, thorax dark .....*H. tripunctata.*
No such dots .....11.

11. Thorax and abdomen very pale ; the longitudinal veins mostly pale .....*H. pulchella.*
Thorax and abdomen darker, some of the longitudinal veins brown. 12.

12. Apical costal area darker; larger species, 10 mm. long. *H. luridipennis.*
Apical costal area not much darker ; smaller species, 8 mm. long .....*H. terminata.*

Heptagenia marginalis, n. sp.

A rather large pale species, but not as pale as *H. flavescens*, the anterior margin of the produced clypeus black : pronotum each side with a black stripe, and the lower margin black ; a black mark on the hind edge of coxa I, one each side of coxa II, one behind the last and rather above it, and one above coxa III at base of abdomen, dorsal segment narrowly margined behind with black, and a dark oblique stripe each side, setæ rather dark ; venter pale, unmarked, except the ventral plate of female is rather darker ; this plate is nearly hemispherical and nearly covering the next segment ; wings faintly darker along the costal area, especially near

the tip; venation brown, none of the veins margined, basal costal cross-vein wholly pale; last dorsal segment of abdomen with two narrow parallel depressions above. Legs pale, femora a little darker at tips, not in middle. In the male the basal joint of tarsus I is shorter than the fifth. Length, 10 mm.

From Glencarlyn, Va., July 23; Harrisburg, Penna., Wetzel's Swamp, Oct. 2, and Great Falls, Va., June 18, ♂.

Heptagenia placita, n. sp.

Male: Head pale, a transverse dark band on vertex; notum rich brown; pleura pale, mostly white; abdomen pale, posterior margin of dorsal segments narrowly black; last two segments reddish-brown; setæ very pale, the joinings barely marked; venter pale; legs pale, femora without median mark, but distinctly darker at tips, tip of tibia I black. Wings hyaline, with brown venation, apical marginal area suffused with brown, basal costal cross-veins black, and costal area before it rather darkened, no other veins margined, six cross-veins before bulla, twelve beyond it. First tarsal joint of leg I one-half as long as second joint, and a trifle longer than the fifth joint. Length, 8.5 mm.; wing, 9.5 mm.

FIG. 13.—*Heptagenia placita*, male forceps and last dorsal segment.

From Sport Island, Sacandaga River, N. Y., June 12. (Alexander.)

Heptagenia tripunctata, n. sp.

Male: Thorax as dark as in *H. terminata*, femora with middle and apical dark bands, tip of tibia I dark; basal joint of tarsus I one-half as long as second joint, subequal to fifth joint; a few brown dots on face, especially two near middle below the anterior ocellus. Each segment of the abdomen with three dark dots on its hind border, one at middle, and one on each lower side, near the stigma; venter unmarked. Wings with dark on the apical costal part; basal cross-vein very heavy and black, other costals also dark; anterior pleura with an oblique dark streak; eight to ten costals before bulla, about fifteen beyond. Length, 10 mm.

From Milwaukee, Wisconsin, also Westfield, N. Y.

Heptagenia frontalis, n. sp.

Male: Pale yellowish, resembling *H. pulchella* and *H. terminata*. There is on the face a black spot under each antennæ and adjoining the

eye; a narrow oblique black line udder front wing, a line over base of hind legs, and margin of pronotum black; notum brown, but the median prolongation is yellowish. Femora pale, each with middle and apical bands of brown. Wings hyaline, apical marginal area brownish, some cross-veins in costal and radial areas margined with black, one or two under bulla are more broadly margined. The wings are rather long and narrow; about six costals before bulla and thirteen or fourteen beyond. Length, 8 mm.

From Middlesex Fells, Mass, August; by the black spots under antennæ it is near to *H. interpunctata*, but separated by absence of the dash in front wings.

H. pulchella and *H. terminata* Walsh.

I think both of these are good species; in life *H. pulchella* is very pale, almost whitish-hyaline; while *H. terminata* has a dark thorax, a darker tip to the abdomen, and the stigmal dots are distinct, as well as other marks on the segments, at least in fully-coloured specimens. It is very close to *H. luridipennis*, but smaller.

H. interpunctata Say, and *H. Canadensis* Walk.

Both of these have the black dash under the bulla, but the former is pale, yellow or greenish, while *H. Canadensis* is very dark and larger, and more northern in distribution.

H. flaveola Pict., is, I think, a synonym of *H. interpunctata*. This species is very abundant over the Eastern States; the female has a prominent black dot above each lateral ocellus, but not the spots under the antennæ.

H. maculipennis Walsh.

This is readily known by the heavily-marked costal cross-veins; it is a small species, with rather narrow wings; each abdominal segment has on the sides an oblique dark stripe (not an apical band).

H. simplex Walsh.

A small form which may be this species occurs near Washington, but is rather too small. The wing is narrow, like *H. maculipennis*, but wholly unmarked, and the venation pale.

H. flavescens Walsh.

This is a wholly pale species, of fairly large size. I have it from St. Anthony's Park, Minn.

H. vicarius Walk.

Is a large dark species, with deeply-marked venation, and the tips of hind wings in both sexes and in the subimago rather broadly infuscated.

H. verticis Say.

Is a large, rather dark species, with a dark median stripe on the notum; sometimes there is a faint dash under the bulla, as in *H. Canadensis*.

Heptagenia luridipennis Burm.

Male: brownish; notum rich brown; dorsum of abdomen brownish; two approximate submedian streaks, a lateral streak, and hind margin of each segment darker; setæ pale, alternate joinings plainly brown; legs faintly brownish, all femora with dark middle band, and dark at tips, tip of tibia I black; venter pale brownish, lighter at tip; wings hyaline, faintly darker in the apical marginal area, venation uniformly pale brown, the basal costal cross-vein heavily black, about seven cross-veins before bulla, about twelve beyond, all simple; basal joint of tarsus I hardly one-half as long as second, subequal to fifth. Male genitalia similar to *H. placita*, but the ventral plate is not so deeply emarginate in middle, and the forceps limb is rather longer. Length, 11 mm.; wing, 13 mm.

From Johnstown, N. Y., June 1. (Alexander.) Also Westfield, N. Y., and Washington, D. C.

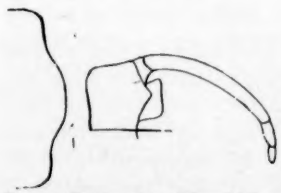


FIG. 14.—*Heptagenia luridipennis*, male forceps and last dorsal segment.

FIG. 15.—*Epeorus pleuralis*, male forceps and middle appendages from side.

Heptagenia (Epeorus) pleuralis, n. sp.

Pale reddish-brown above, paler beneath; each side from base of fore wing forward is a furcate white streak, other smaller white streaks and spots on the pleura; legs pale brownish, a prominent black spot on under side of each femur, a little before the middle; setæ long, brown, joinings

not marked; wings hyaline, rather darker in costal area near the tip; venation pale brown, the costal cross-veins very faint in basal part of wing. Leg I of male very long, the basal tarsal joint as long as the second, the third about as long, and the fourth plainly shorter. About six or eight costal cross-veins before bulla, and twelve to fifteen beyond. The male forceps very long and slender, the submedian appendages, seen from side, show a submedian erect, slender tooth or spine. Length, 9 mm.; wing, 9 mm.

From near Gloversville, N. Y., May 15. (Alexander.)

Heptagenia (Epeorus) modestus, n. sp.

Pale; thorax and tip of the abdomen dark; other segments of the abdomen narrowly tipped with dark; legs pale, femora banded near the middle with brown, tip of tibia I of male black; basal joint of male tarsus I about as long as the second joint, the third as long as second, the fourth much shorter, fifth one-half of the basal; the first, second and third together a little longer than the tibia; setæ pale, their alternate joints tipped with dark; wings scarcely darker in the apical costal area, longitudinal veins faintly brown, the cross-veins darker brown, none marked with black, except the basal costal; five or six costals before bulla, eight or ten beyond. Length, 6.5 mm.

From Washington, D. C., and High Island, Md., Sept. Readily separated from other species by the pale setæ marked with dark at tips of joints.

Heptagenia (Epeorus) Californicus, n. sp.

Thorax pale brownish; abdomen pale, hind margin of each segment dark; tip of abdomen darker than elsewhere; setæ brown, unmarked; wings with the costal margin rather dark, especially toward tip; venation pale brown, no heavily marked veins; femora unmarked, but rather brownish, tip of tibia I of male dark; basal joint of tarsus I fully as long as the second, third also as long, fourth a little shorter; first and second tarsal joints together nearly as long as the tibia. The submedian appendages, seen from the side, do not show any spine above; the last segment of the male forceps is very long. Length, 10 mm.

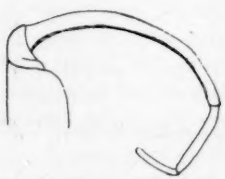


FIG. 16.—*Epeorus Californicus*, male forceps.

From the mountains near Claremont, Calif. (Baker.)

NOTES ON A FEW BUTTERFLIES FOUND AT KASLO AND IN NORTHERN BRITISH COLUMBIA.

BY J. W. COCKLE, KASLO, B. C.

It has been suggested that notes on the occurrence of unusual butterflies should be published, and, as the following will show, I have been fortunate in making several interesting captures.

Chionobas gigas Butler.—A remarkable male specimen was taken at Kaslo in thick timber and near the water's edge, at an altitude of 1,800 feet, on the first of June, 1908. All previous records of this species were from the coast mountains at high altitudes. Mt. Arrowsmith, on Vancouver Island, and Mt. Cheam, on the lower mainland, were the only known localities. Wright, in his "Butterflies of the West Coast," says *gigas* is found on the bald knobs of the mountain tops, but never in the valleys or lowlands; so the occurrence of *gigas* in the valley of the Kootenays at a low altitude adds interest to the record.

The specimen on the upper side agrees with specimens from Mt. Arrowsmith, but on the under side there is a marked variation, the primaries being identical with the figure of *ivallda*, Mead., which Wright figures and reports as occurring in the Sierras at an elevation of 10,000 ft. This variation applies only to the maculation; the ground colour is like *gigas*, a rich nut-brown, and not pale straw-colour as in *ivallda*.

Everes comyntas Godart.—One male, Kaslo, B. C., May 30, 1904. Considerable doubt may be expressed as to this record, but the specimen is identical with eastern material, and has no resemblance to *amyntula*, which is a common species here. I cannot claim this as a record of farthest west, as I was shown a specimen which I identified as *comyntas*, in the collection of Mr. A. H. Bush, of Vancouver; this was taken on the Stickeen River, on the north coast of British Columbia.

Colias Kootenai.—A probable new species, May 17 to 20, and fall brood to Oct. 9. This has been confounded with *eriphyle*, Edw., but does not agree with Edwards's description. It emerges about three weeks earlier than *eriphyle* in both broods; the margins are narrower, the expanse less than that of *eriphyle*, and the colour of the secondaries on the underside is greenish and not deep orange-yellow, as stated in Edwards's description of *eriphyle*. Unfortunately the *Colias* group is in great need of revision by some one who is broad-minded enough to assign all the various named species to their proper place. I have secured a large series of *Colias* in order to compare them with this reputed new

species, and I find that *philodice*, *eriphyle* and *christina* are generally distinguished in collections as representatives of certain localities, and at the same time I can take individual specimens from all of these localities, and they are absolutely identical in maculation and colour. I do not wish to be understood as saying that the original descriptions of these species are not valid, but that they are so little known that many examples which are now so named in collections are entirely wrong. My own opinion is that *philodice* is far more widely distributed in the west than is generally recognized.

Thecla iroides, Boisd., var. *immaculata*, n. var., one, Kaslo, B. C., May, 1897. An albinic form of *iroides*, of a deep straw colour, shading to canary-yellow, immaculate on both upper and under sides.

This is the only albinic specimen of Thecla that appears to be known, and my object in recording it is that possibly some collectors may have met with other specimens of this character ; it is the only one I have ever seen, and was taken amongst a large series of *iroides*, which is one of the commonest butterflies here, flying in thousands in the early spring.

Cyaniris ladon, Cram., var. *Quesnellii*, at Bala Lake, Quesnelle, northern B. C. These two specimens were brought down by a " timber cruiser " and given to me. I submitted them to the late Dr. Fletcher, who wrote me that, had they been taken in Ontario, he would have had no hesitation in stating that they were a melanized form of *ladon*, and would have named them " *maculata-suffusa*." As we have already ten recognized varietles of *ladon*, it would seem unfair to burden the lists with a new variety, but in view of the opening up of northern B. C. by the transcontinental railways, there is every reason to think that if this variety is found to be (as I think) a distinct local race, it should be entitled to a specific name. The upper surface is deep violet-blue ; the underside has the markings as in *Marginata*, but they are very heavy and of a deep chocolate-brown ; a few very minor differences may also be found, but they are trivial.

I hope some of our collectors will obtain further specimens of this " Blue," and can only apologize for naming it tentatively, as I think it will prove a local race which will be found abundant in the Quesnelle Valley. When further specimens can be secured to substantiate the MS. description, I shall take pleasure in publishing a full description as a tribute to a Canadian who was good enough to remember a poor butterfly hunter over 1,000 miles away.

FOUR NEW SPECIES OF HYMENOPTERA.

CHALCIDOIDEA, ENCYRTIDÆ.

BY A. B. GAHAN, MARYLAND EXPERIMENT STATION.

The following new species of Hymenoptera are deemed of sufficient interest to warrant description. The two species of *Eupelmus* were reared by the writer during the past season, while the other two species were found accessioned but unidentified in the collection of the Experiment Station. Types of all the species have been placed in the United States National Museum.

Eupelmus brevicauda, n. sp.

Female : Head transverse, as wide as the thorax, somewhat coarsely and densely punctate with silvery-white pubescence on the cheeks and face below antennæ ; brassy-green, except the eyes, which are without pubescence. Antennnal scape not especially long, flattened on side next to eyes, cupreus-green ; flagellum subclavate, obliquely truncate at the tip, pilose ; pedicel and two or three following joints brassy ; remaining joints darker, nearly black. Prothorax short, narrowed in front, cupreus ; mesoscutum with broad longitudinal depression in the middle, green with bright cupreus reflections and with sparse white pubescence, very finely punctate ; sternum and pleuræ shagreened, dark metallic-green, former with sparse white pubescence, the latter bare : axillæ slightly separated, scutellum rounded behind and unicolorous with the mesoscutum. Wings very slightly and uniformly fuliginous. Fore and hind coxæ metallic-green, median pair darker ; trochanters yellowish ; fore and middle femora and tibiæ brownish-yellow, hind femora dark brown, the hind tibiæ with basal half brown and apical half light yellow ; all tarsi with 1st joint whitish, following joints brown, last joint and ungues black. Abdomen hairy, with dorsal segments 1–4 deeply incised, dark purplish, except at base, which is bright metallic-green. Ovipositor sheath short, black, except apex, which is yellowish ; ovipositor slightly exserted and yellowish. Length, 3.5 mm.

Described from five female specimens reared from eggs of Mantis sp. at College Park, Md., and two female from Galveston, Texas, also reared from Mantis eggs. The Texas specimens were loaned by the United States National Museum.

Eupelmus momphæ, n.sp.

Female : Head slightly wider than the thorax, rugosely sculptured, tending to parallel wrinkles on the vertex, temples, and cheeks, brassy-green with more or less purple about the bases of the antennæ ; antennæ

12 jointed; scape not reaching the anterior ocellus, colour of burnished brass; pedicel and flagellum dull bronze, almost black, club slightly flattened and obliquely cut off at apex. Prothorax narrowed in front, punctate, with a fringe of long black hairs dorso-posteriorly, slightly æneous; mesoscutum æneous, sculptured and with sparse white pubescence, parapsidal furrows broad and meeting slightly behind the middle of the mesoscutum; axillæ separated, scutellum rounded behind, sculpture and colour like that of mesoscutum; mesopleuræ and mesosternum finely reticulately sculptured, steel-blue, tinged with æneous, the mesepimeron without pubescence; metathorax dorsally nearly smooth, shining green with white hairs laterally. Fore and hind coxæ metallic and punctate, their femora dark blue or black; all the trochanters, knees, and apices of tibiæ yellow; middle femora and all tibiæ yellowish-brown; posterior and middle tarsi with the first two or three joints whitish, the others brown; front tarsi yellowish, the apex brown. Wings hyaline the veins brown. Abdomen as long as the thorax, shining purplish above, more or less æneous below, dorsal segments deeply incised; ovipositor sheath extending beyond the anus, about one-third the length of the abdomen, black at base and apex, with a broad orange-yellow annulus between. Length, 3.8 mm.

Habitat.—Alabama.

Described from four females reared from seed pods of *Œnothera*, which were infested with *Mompha brevivitella*.

Homalotylus albitarsus, n. sp.

Female: Length, 1.5 mm. Head longer than wide, granularly punctate with numerous coarser punctures on the face; eyes large, elongate oval; lateral ocelli touching the eye margins; scrobes not developed; scape long and cylindrical; pedicel nearly three times as long as thick, twice as long as first funicle joint; funicle joints subequal and about as long as thick; club not quite as long as three preceding funicle joints, obliquely acuminate. Prothorax and mesoscutum scarcely punctate, the latter shining and with numerous whitish hairs; mesoscutellum and axillæ very finely and closely punctate and opaque, the former large, with a few scattered hairs; metanotum smooth and shining. Legs long; the middle tibial spur longer than the first tarsal joint. Fore wings with the marginal vein short; stigmal and postmarginal long and equal; a hairless streak running from the base of stigmal vein obliquely backward and inward.

Abdomen not more than half as long as the thorax, the basal dorsal segment reticulately sculptured. Colour: head ferruginous; scape, pedicel, and joints 1, 2 and 3 of funicle dark brown; joint 4 of funicle brown basally, becoming white apically; joints 5 and 6 and the club, white. Prothorax, axillæ, mesoscutellum and mesopleuræ ferruginous; mesoscutum dark brown, nearly black; fore and middle legs dark ferruginous; the posterior femora and tibiæ dark brown; middle and hind tarsi white except apical joint; front tarsi ferruginous; fore wing with a broad band in middle covering a little less than half the wing and a small band at the basal angle fuscous; hyaline between bands and at apex. Abdomen blackish brown.

Habitat.—Washington County, Maryland.

Described from two specimens in the collection of the Maryland Experiment Station. The accession states that these two specimens were reared August 2nd, 1898, from a larva on a peach twig infested with *Lecanium nigro-fasciatum*. The usual hosts of species of *Homalotylus* are *Coccinellidæ*, and it is safe to assume that the host in this case was the larve of some lady-bird which was feeding on the *Lecanium*.

Cheiloneurus lineascapus, n. sp.

Female: Length, 1.6 mm. Head with the vertex, front and borders of the mouth finely punctate and opaque, the cheeks, temples, and space within the semicircular scrobes shining and smooth; ocelli in an acute angled triangle, the lateral ocelli very close to the eye margins; scape reaching a little more than half way to the anterior ocellus, not strongly dilated; pedicel twice as long as thick and equal to the 1st funicle joint; funicle joints compressed and widening gradually to the club, which is about as long as the two preceding funicle joints and about as wide as the last funicle joint. Prothorax and mesopleuræ slightly shining and very finely wrinkled; mesoscutum indistinctly punctate, shining and thinly covered with fine white hairs; mesoscutellum and axillæ finely and closely punctate, the latter with a tuft of very coarse bristles at the apex; metascutum smooth and shining. Middle tibial spur stout and as long as the first tarsal joint, the latter as long as all the succeeding joints combined. Abdomen smooth and shining, as long as the thorax; sheath of ovipositor projecting beyond the anus, about one-fourth the length of the abdomen. Colour: Head yellowish-ferruginous, metallic-green on the cheeks; scape brown, with a white median stripe from the base to the apex; pedicel and flagellum dark brown. Thorax yellow ferruginous, except the mesonotum,

which is purplish-black and the scutellum and axillæ, which are brownish. The anterior wings are wholly clouded, except the basal one-third and a patch at the extreme apex, which are hyaline; legs brown, with the exception of the hind coxæ, which are lighter and the posterior and middle tarsi are light yellow, with the apices brown. Abdomen dark brown above and below, the basal segment above violaceous; the ovipositor sheaths yellow.

Habitat.—College Park, Md.

Described from four specimens reared May 7th, 1898, by Franklin Sherman, Jr. The accession record states that they were reared from *Kermes* on lilac.

NEW SPECIES AND VARIETIES OF NORTH AMERICAN LEPIDOPTERA.

BY WILLIAM BARNES, S. B., M. D., AND J. B. McDUNNOUGH, PH. D., DECATUR, ILL.

Apantesis toœle, n. sp.

♂.—Palpi, antennæ, front, thorax and patagia black, the latter edged broadly with whitish-pink on both margins. Collar with a dorsal and two lateral pinkish stripes, the latter being continuous with the edging of the patagia. Pectus blackish, with a pinkish lateral stripe close to base of wings, legs black, marked with light ochre. Abdomen crimson above, with a dorsal and lateral series of broad black spots almost forming a band. Underneath whitish, with two lateral series of black markings, partly confluent. Primaries rich deep brown; costa and inner margin edged with creamy-pink for half their length from base. A broad longitudinal band of same colour in submedian fold, slightly forked near anal angle. The usual subbasal and antemedian bands are absent, the latter being represented by a slight enlargement of the submedian band and a small spot on costa. The medial and postmedial bands are present, but do not reach costa nor extend below the longitudinal band. The W mark is broad, and touches the postmedial band towards its centre, but does not attain to outer margin. The portion of wing enclosed by the cream-coloured bands shaded with black. Secondaries crimson, with broad black irregular band extending along costa and outer margin to anal angle. Inner margin with black dash extending from base almost to outer border. Fringes of both wings deep brown, with a few whitish shades at anal angle of secondaries.

Underneath as above; ground colour considerably lighter and bands of primaries not so distinct.

Expanse, 37 mm.

(a). *Apantesis toœle*, ab. *ophir*, n. ab.

Similar to *A. toœle*, but thorax and collar deep black without stripes.

This species most nearly approaches *A. Williamsi*, from which it may be distinguished by its larger size and more brilliant colouring of secondaries. The fact that a form with black thorax exists would seem to indicate that it is more than a geographical race of *Williamsi*, and for the present we consider it as a separate species. As in all members of this group considerable variation is present. On the primaries the medial band may be reduced to a mere spot, the costal border wanting, and the W mark may meet the postmedial band on costal margin. The broad black margin of secondaries may also be considerably reduced, leaving the irregular indentations to form a submarginal row of three or four spots. In fact, this form, although not so common among the material before us, is probably the original one, and the irregular broad band is merely formed by the fusion of the submarginal spots among themselves and with a narrow costal border. On those specimens with reduced border the basal dash is also missing.

Habitat.—Provo, Ut.; Eureka, Ut. (Spalding.) Described from 6 ♂'s *(toœle)* and 5 ♂'s (ab. *ophir)*.

Types.—Coll. Barnes.

Euchætias gigantea, n. sp.

♀.—Palpi, front, antennæ, thorax, legs and wings brownish-gray, primaries slightly sprinkled with lighter scales on outer fourth, well defined inwardly, giving the appearance of a curved line across wing. Anterior edge of collar edged with scarlet, extending downward to form a patch behind the eyes. This scarlet edging is followed posteriorly by a delicate ochreous line, which, broadening out laterally, extends on the under side as far as the point of insertion of secondaries. Fore coxæ, base of wings underneath and abdomen above scarlet, the latter with a series of black dorsal spots and faint traces of lateral markings. Pectus and abdomen underneath light gray, much lighter than wings. Anal tuft yellowish-buff, slightly tinged beneath with orange anteriorly.

Near base of primaries on under side is a small patch of whitish hairs.

Expanse, 47 mm.

Habitat.—So. Arizona. (Poling.) Described from 1 ♀.

Type.—Coll. Barnes.

This species can easily be separated from *E. egle*, its nearest relative, by its large size and scarlet abdomen.

Euchætias castalla, n. sp.

♂.—Palpi porrect, projecting slightly beyond front, grayish-brown, darker towards tip, with a few reddish hairs at base. Antennæ bipectinate, shaft white on upper side, pectinations and under side of shaft blackish. Collar edged anteriorly with red, which extends downward, forming a small patch behind the eyes. Front, thorax, patagia and wings pure white; on primaries at apex of cell a very slight gray spot. Abdomen red, with a dorsal and two lateral rows of black spots, fading towards posterior end.

Underneath, wings as above, with traces of gray along costal margin and in cell. Pectus and abdomen white, with reddish traces at base of wings and on fore coxæ. Legs grayish-white.

Expanse, 31 mm.

♀.—Very similar to ♂; black markings of abdomen much more prominent; anal tuft white.

Expanse, 40 mm.

This species bears a superficial resemblance to *Pygarctia roseicapitis* N. & D., but lacks the spur of fore tibia, characteristic of the genus *Pygarctia*. It may further be distinguished from the above speces by the white shaft of the antennæ, the lack of the characteristic red collar, and the white anal tuft of the ♀, the abdomen of which corresponds very closely with that of *E. Bolteri* Stretch.

Several specimens show traces of gray sprinkling on primaries, and one ♂, for which we propose the name ab. *griseopunctata*, possesses, in addition to this sprinkling of gray scales, a distinct irregular gray band beyond the cell, bent outward from costal margin to vein M_1 and thence, nearly parallel to outer margin, to a point about midway between anal angle and base.

Habitat.—Santa Catalina Mts., Babaquivara Mts., Ariz.; So. Arizona. (Poling.) Redington, Ariz. Described from 14 ♂'s and 3 ♀'s.

Types in coll. Barnes.

Halesidota indistincta, n. sp.

♂.—General colour dark ochreous; palpi, front and shaft of antennæ light yellow; thorax with some indistinct darker shades. Markings on primaries very obscure; three spots along costa of a light yellowish colour,

the first two followed inwardly by a minute spot of similar colour; an obscure spot just beyond cell, from which a faint broken brown line proceeds to middle of inner margin; beyond this another faint line commencing at vein M_2 and ending above inner margin in a reniform spot, slightly lighter than ground colour; a brown dentate submarginal line, most prominent at apex. Secondaries hyaline, tinged with yellow at anal angle.

Beneath hyaline; primaries broadly suffused with dark ochreous at apex and outer margin; costal margin of both wings yellowish, a brown mark just beyond cell, and an incomplete submarginal row of spots of same colour.

Expanse, 43 mm.

Habitat.—Santa Catalina Islands, Calif.

Type.—1 ♂, coll. Barnes.

This species is closest to *maculata*, var. *eureka* Dyar, differing from it, however, sufficiently in the presence of the dentate submarginal line and other points of detail to warrant description.

Litodonta contrasta, n. sp.

♂.—Collar gray, edged with black posteriorly; thorax and patagia brownish-black, intermingled with gray scales. Abdomen gray, beneath whitish; legs hairy, gray; tarsi black. Primaries dark smoky-brown; basal line distinct in costal half, black, edged internally with white. T. a. line obscure, geminate, slightly outcurved to cubital vein, thence following vein backward for a short distance and again curving outward to inner margin; in costal portion filled with whitish and followed by a grayish median shade. At extremity of cell a thin, black, S-shaped mark. T. p. line scarcely visible as a geminate series of lunules, convex inwardly. A small white apical patch tapering off into an obscure series of submarginal yellowish spots. Fringes concolorous with wings, edged with black basal line and with black dashes at extremity of veins. Secondaries white; slight traces of brown shading along outer margin; fringes white.

Underneath primaries smoky, white at base and along inner margin, darkest along costa towards apex, the dark shade containing three small white dashes. Secondaries white, with thin edging of black along costa.

Expanse, 30 mm.

Habitat.—Babaquivera Mts., Ariz.

Type.—1 ♂, coll. Barnes.

Eunotela angustiora, n. sp.

This species corresponds in venation with the genus *Eunotela* (Schaus. Rev. of Am. Notodontidæ) with the exception of veins M_3 and Cu being from a point instead of separated. In wing shape it more nearly approaches the genus *Kurtia* (Schaus. Rev. of Not., pl. XII, fig. 7), having the primaries narrow and pointed, with a convex costal margin. It may be necessary to create a new genus for its reception, but for the present we place it in the former genus.

♀.—Palpi porrect, brown, sprinkled with grayish scales. Front and collar yellow-brown, bordered posteriorly by a darker shade. Patagia and thorax gray, with a few darker hairs intermingled. Abdomen gray-brown, underneath much lighter; legs hairy, gray. Primaries gray, sprinkled with darker scales. Basal line indistinct; t. a. line represented by a blackish shade, outwardly angled near costa, and an indistinct geminate black line at inner margin. Beyond the black shade and occupying the position of the reniform is a distinct geminate black lunule, convex outwardly and extending from costa to cubital vein, most apparent in the cell, where it contains a few reddish-brown scales. Reniform oblong, edged with black on inner margin and preceded by whitish shade. T. p. line only represented by some darker dashes on the veins, followed by a distinct reddish-brown slightly-waved shade, extending across wing and angled outwardly at inner margin; on costa this shade is preceded by a few black dashes. A very distinct row of six round black spots occupies the terminal area in the interspaces of the veins R_5 to first anal. Fringes gray, preceded by a faint black line. Secondaries smoky, slightly darker on outer margin. Under side of primaries smoky, darker along costa, with a small black spot near apex; submarginal row of spots showing through from upper side. Secondaries whitish, shaded with darker at apex.

Expanse, 44 mm.

Habitat.—Palmerlee, Ariz., 1 ♀.

Type.—Coll. Barnes.

Heterocampa ditta, n. sp.

♂.—Head and thorax blackish, slightly sprinkled with gray; abdomen brown; first segment lighter, with blackish tuft; last segment concolorous with thorax; underneath silvery-gray. Primaries almost uniform deep black-brown, slightly darker at base, with a sprinkling of grayish scales along middle of costa. At end of cell a narrow curved black mark. From a point on costa close to apex a clearly-defined white streak of even

width proceeds inward to vein M_1, somewhat interrupted in anterior third by blackish scales. Secondaries white, with a very narrow marginal border of black, extending to anal angle. Fringes checkered. Underneath primaries whitish, strongly suffused with black along costa and at apex. Secondaries white, with traces of darker markings along costa.

This species most nearly approaches the *subrotata* group, but appears sufficiently distinct from all specimens examined by us to warrant a new name.

Expanse, 33 mm.

Habitat.—Santa Catalina Mts., Ariz., 1 ♂.

Type.—Coll. Barnes.

Heterocampa pulverea, var. *averna*, n. var.

Similar in size and markings to *pulverea*, G. & R., but entirely lacking the olive-green tinge peculiar to the eastern specimens of this species; ground colour blackish-brown shaded with lighter; black submarginal shades very distinct, white patch beyond cell not so prominent, shaded with brown. Secondaries white, with a well-defined marginal border of blackish and markings on costa, as in typical species. The smoky appearance of *pulverea* entirely lacking.

Habitat.—Redington, Ariz.

Type.—1 ♀, coll. Barnes.

This is probably the western race of this species, and in general appearance is much darker than the form of the Eastern and Middle States.

(To be continued.)

A NEW STAMNODES.

BY RICHARD F. PEARSALL, BROOKLYN, N. Y.

In the CAN. ENT. for October, 1909, page 366, I gave a brief review of the genus and species of *Stamnodes* Guen., and among the latter I included, by error, *Alaskæ* Hulst. How my notes were made to mislead me I cannot explain now, but the species does not belong there, and must be stricken from the list. In this connection I will add, however, this description of a new species, which rightly finds its place with the group as I separate them:

Stamnodes Reckseckeri, n. sp.—Expanse, 32 mm. Palpi short, dark gray beneath, dull white above. Front white and silken-gray mixed. Thorax soiled-white, with narrow central black line; patagiæ silken-gray;

abdomen above soiled-white and gray, darker at tip. All wings above a silky even fuscous-gray, with a faintly roseate flush, the primaries near base, narrowly beneath costa, and apically, sprinkled with black atoms. These form on costa near base a square patch, within which is a smaller white patch, neither very definite in outline. Costa white scaled, changing to buff toward apex. No markings above. Fringes pink, cut with a fine pencil of black hairs opposite veins. No discal dots.

Beneath, the ground colour as above. Along costa, very narrow at base, and widening as it approaches apex, running down very narrowly along outer margin a band of rosy, white and black scales extends. The narrow white extradiscal line, about one-fifth from apex, crosses costa in a straight line to vein seven, then becoming fainter, as it curves a little outward, is lost centrally. A narrow bright chestnut band borders this line outside from costal edge to vein seven, ending in black at vein six. Discal spots indicated faintly as a dusky bar, nearer base than usual. Fringes pink, darkened by black atoms. Secondaries, from base to extradiscal line, are covered with pinkish, white and black scales, the latter massed into an irregular blotch, which nearly fills the outer half of cell, darkest costally, and beneath washed with chestnut. The extradiscal, a narrow white line is more evident near inner margin and at costa, where, starting two-thirds out, it runs outward toward centre of outer margin to vein five, then with a rounded angle backward to vein two, thence in a straight line across to inner margin, a little within anal angle. A shading of black atoms running outward on veins borders this line externally from costa to vein six, where it is heaviest, fades out and reappears at vein three, broadening a little as it runs to inner margin. A cluster of black scales at middle of inner margin, and another at inner border of extradiscal line. Subterminal space and fringes evenly dusted with white, black and chestnut-red scales, the latter predominating, giving it a ruddy appearance. Body, legs and abdomen beneath covered with similar scales, the latter somewhat darkened.

Type.—One ♂ from San Diego, Calif., III, 20, 1910, which I owe to the kindness of Mr. L. E. Recksecker, whose name I have given it. There is a ♂ in rather poor condition in the Museum of the Brooklyn Institute, from Monterey Co., Calif., which I have made a co-type.

This species is near to *delicatum* Gross., but is larger, and beneath presents quite a different pattern, lacking also the reddish hue of that species.

NOTES ON TENTHREDINOIDEA, WITH DESCRIPTIONS OF NEW SPECIES.

BY S. A. ROHWER, WASHINGTON, D. C.

PAPER XI.—(GENERA OF PAMPHILIINÆ AND NEW SPECIES).

PAMPHILIINÆ (olim *Lydinæ*).

Linnæus in 1758 divided the genus *Tenthredo* into six divisions; all except the last, which was composed of species known in immature stages only, are now recognized as families or subfamilies. The fifth of these Linnæan divisions of *Tenthredo* contained species now placed in the subfamily Pamphiliinæ. Latreille (Hist. nat. Crust. et Insect, III, p. 303, 1802) was the first to give this division of *Tenthredo* a name, when he founded his genus *Pamphilius* on *Tenthredo sylvatica* Linnæus—the genus being monobasic.*

Fabricius (Syst. Piez., p. 43, No. 5, 1804), apparently overlooking Latreille's name of 1802, founded his genus *Lyda* on sixteen species, which have been placed in various segregates of Pamphiliinæ. Curtis (British Entomology, 1831) fixed the type of the genus *Lyda* as *Tenthredo sylvatica* Linnæus, a species originally included, making the genus a synonym of the older name *Pamphilius*—the two genera having the same types.

Panzer (Fauna Ins. Germ., Vol. VIII, p. 86, 1805) proposed another name, *Cephaleia*, for the same group, but the name has been restricted to include only those species closely allied to *Tenthredo signata* Fabricius, so the name still holds good.

A. Costa (Pros. Hym. Ital., III, p. 232, 1894) was the next to propose names for the various groups of species, when he divided *Lyda* into *Acantholyda* and *Anoplolyda* on the presence or absence of a superapical spur on the anterior tibiæ.

Rev. F. Konow in 1897 (Ann. K. K. Nathist., Hofmus, XII, pp. 1–32) considered these insects as a tribe, Lydides, and recognized five genera and four additional subgenera. Since then his arrangement has been followed, and with the exception of *Liolyda* Ashmead (CAN. ENT., p. 209, 1898), no new segregates have been proposed.

*Monobasic is a term used to indicate that a genus was founded on one species. In a certain sense it is synonymous with the current use of monotypic, but monotypic had best be used in a restricted sense for those genera which are strictly monotypic, *i.e.*, containing only one species. Monotypic is an unfortunate name, for all genera are necessarily monotypic, as they can have only one type.

GENERIC NAMES USED IN PAMPHILIINÆ.

Acantholyda A. Costa, Pros. Hym. Ital., III, p. 232, 1894.
Type: Tenthredo erythrocephala *Linnæus* [first species].

Anoplolyda A. Costa, Pros. Hym. Ital., III, p. 233, 1894.
Type: Lyda alternans *A. Costa* [first species].

Bactroceros Konow, Ann. K. K. Nathist. Hofmus., XII, p. 21, 1897.
Type: Tenthredo vafer *Linnæus* [chosen].

Cænolyda Konow, Ann. K. K. Nathist. Hofmus., XII, p. 15, 1897.
Type: Tenthredo reticulata *Linnæus* [chosen].

Cephaleia Panzer, Fauna Ins. Germ., VIII, p. 36, 1805.
Type: Cephaleia arvensis *Panzer* = (Tenthredo signata *Fabricius*).

Gongylocorsia Konow, Ann. K. K. Nathist. Hofmus., XII, p. 19, 1897.
Type: Lyda mandibularis *Zaddach* [monobasic].

Itycorsia Konow, Ann. K. K. Nathist. Hofmus., XII, p. 13, 1897.
Type: Tenthredo hieroglyphica *Christ* [chosen].

Kelidoptera Konow, Ann. K. K. Nathist. Hofmus., XII, p. 20, 1897.
Type: Lyda maculipennis *Stein* [monobasic].

Lyda Fabricius, Syst. Piez., p. 43, No. 5, 1804.
Type: Tenthredo sylvatica *Linnæus* [Curtis, 1831].

Liolyda Ashmead, CAN. ENT., p. 209, 1898.
Type: Lyda frontalis *Westwood* [designated].

Neurotoma Konow, Ann. K. K. Nathist. Hofmus., XII, p. 18, 1897.
Type: Tenthredo flaviventris *Linnæus* [chosen].

Pamphilius Latreille, Hist. Nat. Crust. and Insects, III, p. 303, 1802.
Type: Tenthredo sylvatica *Linnæus* [monobasic].

GENERIC SYNOPSIS OF PAMPHILIINÆ.

Claws with an inner tooth ..... 1.
Claws cleft ..... 2.

1. Anterior tibiæ with a superapical lateral spur .... *Acantholyda* A. Costa.
— Anterior tibiæ without a superapical lateral spur ..... *Cephaleia* Panzer.
2. Intercostal vein with only the lower branch present .. *Neurotoma* Konow.
— Intercostal vein with both branches present, forked ... *Pamphilius* Latreille.

Acantholyda A. Costa.

Postgenal area carinated ..... *Itycorsia* Konow.
Postgenal area *not* carinated ... *Acantholyda* A. Costa = (Lyda *Konow*).

Cephaleia Panzer.

Basal nervure joining the costa either free or at the base of the cubitus, never on the cubitus ..... *Cœnolyda* Konow.

Basal nervure joining the cubitus free from the costa..... *Cephaleia* Panzer = (Liolyda *Ashmead.*

Neurotoma Konow.

Postgenal area carinated .. .. *Neurotoma* Konow.

Postgenal area not carinated..... *Gongylocorsia* Konow.

Pamphilius Latreille.

Basal nervure joining the costa free from or at the base of the cubitus, never joining the cubitus free from the costa..... *Kelidoptera* Konow.

Bazal nervure joining the cubitus free from the costa ..... 1.

1. First flagellar joint more than half as long again as the second..... *Anoplolyda* A. Costa = (Bactroceros *Konow*).

— First flagellar joint subequal with or slightly longer than the second .... *Pamphilius* Latreille.

Acantholyda Kincaidi Rohwer.—Itycorsia Kincaidi *Rohwer*, CAN. ENT., p. 91, 1910.

The placing of this species in *Itycorsia* was a mistake. It belongs to *Acantholyda*, and is allied to *margiventris* (Cresson), but may be separated from that species by the dark red tibiæ and tarsi, and in having a pale spot on the pleura.

Cephaleia Hopkinsi, n. sp.—Superficially resembles *Cephaleia fulviceps* Roh., from New Jersey, but the postocellar area is nearly quadrate, not wider than the cephal-caudad length, and the legs below the coxæ are rufous, not black.

Male: Length, 11.5 mm. Lateral supraclypeal areas shining, impunctate; clypeus and supraclypeal area broadly rounded, not carinate; postocellar furrow wanting; ocellar furrows nearly parallel; antennæ 21-jointed, third joint nearly as long as the three following; middle area of the mesonotum punctured, the sides impunctate; hypopygidium wider than its cephal-caudad length, pointed, apically and triangularly depressed. Black; head, except a large quadrate spot from antennæ to occiput and apical part of mandibles rufous; legs below coxæ the colour of head. Wings dusky hyaline; venation black.

Type locality: Flagstaff, Arizona. One male swept from yellow pine *(Pinus scropulorum)* 28th May, 1904, by Dr. A. D. Hopkins.

Type: Cat. No. 13080, U. S. N. M.

Anoplolyda sæva, n. n.—Bactroceros pugnax *Roh.*, Jour. N. Y. Ent. Soc., XVI, No. 2, p. 103, 1908; non Pamphilina (Bactroceros) pugnax *Knw.*, Ann. Nathist. Hofmus. Wien., XII, p. 24, 1897.

Pamphilius ocellatus, n. sp.—♀. Length, 10 mm. Clypeus subtruncate, lateral angles rounded, carina strong but not extending to the apex, the surface, also the front below the crest, with shallow confluent punctures, those of the lateral supraclypeal area more separate; crest strongly broken by the antennal furrows; middle fovea wanting; ocellar basin strongly defined, V-shaped above; head behind the crest shining, nearly impunctate; labrum with a broad tooth in the middle; antennæ about 28-jointed, third joint shorter than the scape; mesonotum and mesopleuræ shining, nearly impunctate; scutellum with rather close punctures; abdomen shining, impunctate; second and third cubital cells subequal in length. Black; apical half of antennæ, clypeus, base of mandibles (apices piceous), most of posterior orbits, area around ocellar basin, postocellar spots, line from occiput to middle of inner orbit, where it enlarges, tegulæ, prosternum, spot behind, legs beyond coxæ, except the posterior tibiæ and tarsi, *pale yellow;* abdomen beyond the first posterior segment reddish; wings yellowish-hyaline, iridescent; venation dark brown.

Type locality: Minnesota. Four females.

Type: Cat. No. 12785, U. S. N. M.

Pamphilius fulvifrons, n. sp.—♀. Length, 10 mm. Except as noted, this species agrees with the above description of *ocellatus:* Sculpture of front finer, carina weaker, middle fovea represented by an elongate open fovea, ocellar basin not so sharply defined, scutellum impunctate, labrum subtruncate, third cubital cell longer than the second, flagellum fulvous, pleural spot and lower prothorax spot wanting, hind tibiæ and tarsi colour of the rest of the legs, and posterior orbits black.

Type locality: Portland, Oregon, June 13; another specimen from Washington State.

Type: Cat. No. 12786, U. S. N. M.

Pamphilius rubi, n. sp.—Differs from *ocellatus* in size, absence of mark on pleuræ, less prominent ocellar basin, etc. This species was labeled *pallimaculata*, but is not that species, although it resembles it in colour.

♀.—Length, 7.75 mm. Clypeus and front sculptured as in *fulvifrons;* middle carina sloping abruptly at base of clypeus; crest not sharply defined, strongly broken by antennal furrows; ocellar basin as in *fulvifrons;* vertex and orbits subopaque, with a few scattered punctures; postocellar area parted by a faint furrow; third antennal joint shorter than scape; labrum gently rounded at the apex, the middle of apex with a small tooth; mesonotum and mesopleuræ shining, with separate punctures; scutellum with closer punctures, appendage dulled with fine incomplete striæ; abdomen shining; venation normal. Colour black; apex of the clypeus (deeper in middle), spot on lower posterior orbits, three spots on crest, line from superior orbits to occiput, postocellar lines reduced to spots, apical third of antennæ, tegulæ, scutellum, legs below coxæ, except posterior tibiæ, *pale yellow;* abdomen beyond first segment sanguinous. Wings hyaline, iridescent, slightly dusky; venation dark brown.

Type locality: St. John, N. B., Canada, July 24, 1899 (J. Fletcher). Other specimens from Agricultural College, Michigan. Larva feeds on raspberry *(Rubus)*.

Type: Cat. No. 12784, U. S. N. M.

Pamphilius subcavifrons, n. sp.—Separated from its nearest known ally, *cravifrons* (Cresson), by the opaque head, circular middle fovea, broader and larger genitalia, etc.

♂.—Length, 6.75 mm. Anterior margin of the clypeus subtruncate, lateral angles rounded, the surface and area between the antennæ punctato-granular, the lateral supraclypeal areas impunctate; middle fovea small, circular; frontal crest very strong, deeply broken by the antennal furrows, which extend nearly to the occiput; ocellar basin rounded below, sharply V-shaped above; postocellar furrow distinct; venter finely shagreened, occiput and posterior orbits shining, with separate punctures; antennæ about 22-jointed, third and fourth joints subequal; mesonotum shining, almost impunctate; scutellum finely punctured, dulled; abdomen impunctate; genitalia very large, broader than long; hypopygidium broadly, deeply impressed; venation normal. Colour black; head below crest, mandibles, palpi, posterior orbits a little above the top of eyes,

posterior part of anterior lobe, tegulæ, small spot on pronotum, spot on prosternum, oblique line on mesopleuræ, spot above posterior coxæ, legs, except bases of coxæ, pale yellow; apical margin of abdominal segments beneath whitish-yellow. Wings hyaline, iridescent; venation pale brown. Labrum with a long apical tooth.

Type locality: North America. One male labeled "Taken on leaf of *Amelanchier* saw ovipositing, 5/2, 85."

Type: Cat. No. 12783, U. S. N. M.

Pleroneura brunneicornis Roh.—Corrected spelling for *P. bruneicornis* Roh., CAN. ENT., p. 39, 1910.

Pleroneura Schwarzi n. sp.—Easily known from the other black American species by the dark legs.

♀.—Length to ovipositor, 4.5 mm.; length of ovipositor, 2 mm. Anterior margin of the clypeus triangularly, obtusely produced in the middle; middle fovea present, nearly circular; antennal furrows meeting above the anterior ocellus; postocellar furrow present, but above the postocellar line and shorter than it; postocellar line longer than the ocelloccipital line; antennæ with short hairs; head finely granular, opaque; thorax anteriorly more roughly sculptured than the head; stigma triangular below; first recurrent quite free from the first transverse cubitus; sheath sharply pointed, tapering below; tibiæ with rather stout spines. Black, anterior tibiæ dark brown; abdomen somewhat yellowish; wings subhyaline, vitreous; venation very pale brown.

Type locality: Alta, Utah. One female collected June 30 by Mr. E. A. Schwarz, who says the insect was taken when the snow was still on the ground, and was undoubtedly swept from some coniferous tree.

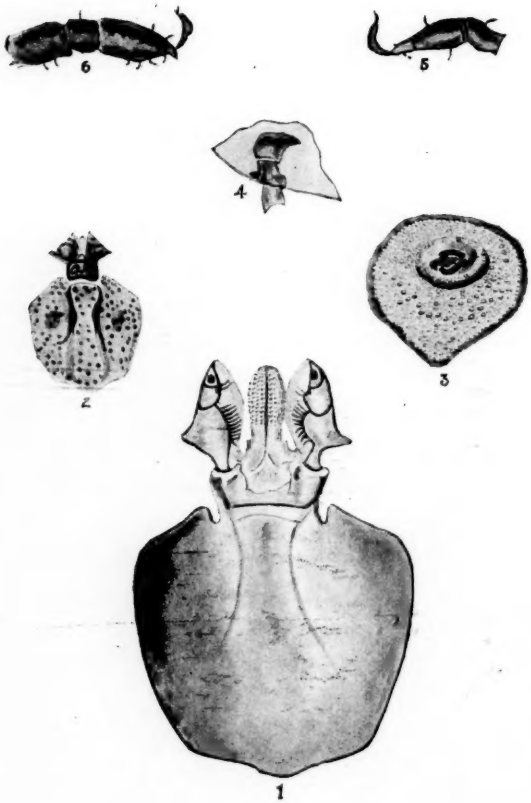
Type: Cat. No. 13081, U. S. N. M.

POSTPONEMENT.

On account of the universally lamented death of His Majesty King Edward the Seventh, the annual meeting of the Royal Society of Canada, which was to have been held from the 17th to the 19th of May, has been postponed, and will not be held till September. The exact date at which it will be held will be announced later.

W. D. LESUEUR, Honorary Secretary, R. S. C.

Mailed June 4th, 1910.



HAEMAPHYSALIS PUNCTATA.